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WARE FRESSOLA VAN DER SLUYS &
ADOLPHSON, LLP
BRADFORD GREEN, BUILDING 5
755 MAIN STREET, P O BOX 224
MONROE, CT 06468

EXAMINER	
FIGUEROA, MARISOL	

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,113	ZHENGDI, QIN	
	Examiner	Art Unit	
	Marisol Figueroa	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5 and 6* is/are allowed.

6)☐ Claim(s) *1-4,7-13,15-17 and 19* is/are rejected.

7)☒ Claim(s) *18 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/13/2006 has been entered.

Amendments Summary

2. The Applicant's amended claims 1-5, 7, 9, 11-13, and 15-17; claim 14 was previously cancelled, and added new claims 18-20. Accordingly, claims 1-5, 7, 9, 11-13, and 18-20 are currently pending in the present application.

Response to Arguments

3. Applicant's arguments with respect to the Yamamoto reference (US 6,549,545) have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

4. Claim 13 is objected to because of the following informalities:

(a) On line 7 of claim 13, insert the word --search window-- before "information". Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 1, 2, 7, 8, 9, 11, 13, 15, 16, and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over KUWAHARA (EP 1,164,383 A2) in view of SOLIMAN (US 2003/0114172 A1).

Regarding claim 1, Kuwahara discloses a method comprising:

estimating a delay of a signal received at a mobile station from a specific network element, within a search window (see col.2, lines 56 – col.3, lines 1-15; the wireless terminal calculates a delay profile within a window for at least one remote signal received from a base station, i.e. specific network element);

and determining a size of said search window based on location information available for said specific network element (see abstract, lines 1-9; col.3, lines 8-11, 16-24; col.6, lines 40-54; the window setter within the wireless terminal changes the range, i.e., size, according to at least one information item within the remote signal received, i.e., (a) position of the base station).

Kuwahara doesn't expressly disclose wherein the determined size of the search window increases an acquisition probability for said signal, however, one person of ordinary skill in the art would recognize that it would have been obvious that the determination of said window size increases the acquisition probability for detecting said signal coming from a network element, i.e., base station, because the mobile station sets the size of the search window according to information

specific from at least one base station and the size is correspondent to detect a signal from a primary base station and at least two neighboring base stations, which only these signals the mobile station will acquire to calculate their signal delays (see col.7, lines 5-12, 39-44).

As well, Kuwahara doesn't expressly disclose wherein the size of the search window is also determined based on a known distance of said mobile station to at least one other network element.

However, this feature is well known in the art and Soliman is evidence of the fact. Soliman teaches that window sizes are determined taking into consideration the distance between the location mobile and the base station (p.0029, lines 7-16; p.0054, lines 1-4).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention, to determine a search window based on a known distance, as suggested by Soliman, in order to conduct a more efficient search (p.0038, lines 1-5).

Regarding claim 2, the combination of Kuwahara and Soliman disclose a method according to claim 1, Kuwahara discloses wherein said at least one other network element comprises a serving network element serving a server cell in which said mobile station is currently located (col.3, lines 54- col.4, line 1).

Kuwahara doesn't expressly disclose wherein the maximum distance of a border of said server cell to said serving network element defines the known distance of said mobile station to said serving network element. However, Soliman teaches that window sizes are mostly determined by the size of the coverage area of a given cell, the window are sized to correspond to a mobile located at the greatest distance, i.e., border of the serving cell, from the base station but within the cell (p.0029, lines 7-16).

Therefore, it would have been obvious to a person having ordinary skill in the art at time of the invention, to define the known distance as the maximum distance of a border of said server cell

to said server network, as suggested by Soliman, in order to size a search window to correspond to the worst case scenarios, regardless of the location of the mobile in the serving cell (p.0029, lines 12-16).

Regarding claim 7, the combination of Kuwahara and Soliman disclose a method according to claim 1, Kuwahara discloses wherein a respective search window is determined for at least two specific network elements in the order of their distance to said mobile station, beginning with the network element which is the closest to said mobile station (col.6, lines 22-39; col.8, lines 40-53; the window is set to detect at least three delay profiles, i.e. three base stations, for determining the position of the mobile terminals; the window setter with information stored in the memory may select a primary base station having the highest received power, e.g. closest to mobile station, and the bases stations surrounding the primary base station).

Regarding claim 8, the combination of Kuwahara and Soliman disclose a method according to claim 1, Kuwahara discloses wherein a search window is determined for at least two specific network elements in the order of the signal strength at said mobile station of signals transmitted by said network elements, beginning with the network element providing the strongest signal (col.8, lines 40-47).

Regarding claim 9, the combination of Kuwahara and Soliman disclose a method according to claim 1, Soliman discloses wherein the covering range of said specific network element is take into account in addition for limiting said search window (p.0029, lines 7-16). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to take into account the covering range of said specific network element, as suggested by Soliman, in order

to size a window corresponding to a mobile located at the greatest distance from the base station but within the cell.

Regarding claim 11, Kuwahara discloses a mobile station (col.6, lines 55-col.7, lines 1-4) comprising: means for receiving signals (Fig. 7, signal receiver 20) from a plurality of network elements of a network for determining the location of said mobile station; means for determining a size of a search window (Fig. 7, window setter 22) according to the method of claim 1; and means for determining a delay of received signals using a respectively determined search window (Fig.7, delay profile calculator) having said size, wherein said size increases an acquisition probability for said signals (see remarks about claim 1 above). Conforming with the combination of Kuwahara and Soliman, the mobile station determines a search window size according to the method of claim 1.

Regarding claim 13, Kuwahara discloses a network element for a network, comprising: means for transmitting signals for determining the location of a mobile station to said mobile station (col.3, lines 54 - col.4, line 1; the system include a center or server which stores information item and sends it to the mobile terminal); means for determining a size of a search window for at least one further network element (col.10, lines 17-21; the server may designate a window size for delay profile calculation therefore it is inherent to have the means for determining a search window size) of said network according to the method of claim 1; and means for transmitting information on the size of said determined search window to said mobile station, wherein the size of said search window information increases an acquisition probability for said signals (col.6, lines 40-54; the information item is transmitted through the base stations and may include the size of at least one window needed for calculating delay profiles of that base station and other base stations; additionally see remarks about claim 1 above).

Regarding claim 15, Kuwahara discloses a communication system comprising: at least two network elements for transmitting signals for determining the location of a mobile station (col.6, lines 22-28); at least one mobile station having means for determining a delay of received signals based on a size of a search window (col.6, lines 28-39); and means for determining the size of the search window according to the method of claim 1 (col.6, lines 55 – col.7, lines 1-12; additionally see remarks about claim 1 above).

Regarding claim 16, the combination of Kuwahara and Soliman disclose a communication system according to claim 15, Kuwahara discloses wherein said means for determining a search window are comprised in at least one of said at least two network elements (col.10, lines 17-21; the window size can be designated by the base station, therefore it is inherent that the base station has means to determine a search window).

Regarding claim 17, the combination of Kuwahara and Soliman disclose a communication system according to claim 15, Kuwahara further discloses wherein said means for determining a search window are comprised in said at least one mobile station (col.6, lines 55 - col.7, lines 1-12; window setter 22).

7. **Claim 3 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over KUWAHARA in view of SOLIMAN, and further in view of UHLIK (US 6,760,599 B1).

Regarding claim 3, the combination of Kuwahara and Soliman disclose a method according to claim 1, Kuwahara discloses wherein said at least one other network element comprises a serving network element serving a server cell in which said mobile station is currently located (col.3, lines 54- col.4, line 1). However, the combination of Kuwahara and Soliman, doesn't expressly disclose wherein said known distance is a distance of said mobile station to said serving network element which was determined based on delay measurements on signals from said serving

network element. Uhlik discloses a method and apparatus for selecting a Base Station and teaches that a received signal delay at a user terminal, e.g. mobile station, is a measurement of the relative distance from each Base Station to the user equipment, and this distance is used to make a Base Station selection (col.13, lines 34-48). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to determine a known distance from a mobile station to a serving network element, i.e. base station, based on delay measurements, as suggested by Uhlik, because it is well known that a signal delay is a measurement of the relative distance from a base station to a mobile station and a criterion used for selecting a base station.

Regarding claim 4, the combination of Kuwahara and Soliman disclose a method according to claim 1, Kuwahara discloses wherein said at least one other network element comprises at least two network elements (col.6, lines 25-28; the system includes a terminal and at least three base stations). However the combination of Kuwahara and Soliman doesn't expressly teach wherein the respective distance from the mobile station to the other network elements was already determined based on delay measurements on signals from said at least two network elements. However Kuwahara and Soliman fails to disclose wherein said known distance is a distance of said mobile station to said serving network element which was determined based on delay measurements on signals from said serving network element. Uhlik discloses a method and apparatus for selecting a Base Station and teaches that a received signal delay at a user terminal, e.g. mobile station, is a measurement of the relative distance from each Base Station to the user equipment, and this distance is used to make a Base Station selection (col.13, lines 34-48). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to determine a known distance from a mobile station to a serving network element, i.e. base station, based on delay measurements, as suggested by Uhlik, because it is well known that a signal delay is a

measurement of the relative distance from a base station to a mobile station and a criterion used for selecting a base station.

8. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over KUWAHARA in view of SOLIMAN, and further in view of BAYLEY (US 6,775,252 B1).

Regarding claim 10, the combination of Kuwahara and Soliman disclose a method according to claim 1, but doesn't expressly disclose further comprising the step of determining a threshold value based on the size of a determined search window, which threshold value defines the minimum signal strength of signals received at said mobile station for which a delay is estimated. Bayley teaches a search window size that is adjusted in response to a measured signal strength of a first base station signal and used by the remote unit to search other base stations (abstract, lines 8-12; col.15, lines 37 – col.16, lines 1-28), the strength of a signal indicates that a remote unit is geographically nearer or farther from the base station (col.7, lines 17-23). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to use the signal strength received from a base station as a minimum threshold value to determine a search window as suggested by Bayley, in order to determine a window size to search for the closest base stations to the mobile terminal for calculating the position of the terminal.

9. **Claims 12 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over KUWAHARA in view of CHEN et al. (US 6,748,224 B1).

Regarding claim 12, Kuwahara discloses apparatus comprising:

means for receiving signals from a plurality of network elements of a network for determining the location of said mobile station (col.6, lines 55 - col.7, lines 1-4; col.6, lines 26-33; signal receiver 20) and for receiving an indication of a size of a search window for each of said network elements (col.6, lines 55 – col.7, lines 1-12; window setter 22) and means for determining a

delay of received signals using a search window having said indicated size (col.6, lines 55 – col.7, lines 1-4; col.7, lines 13-16; delay profile calculator 21).

Kuwahara doesn't expressly disclose wherein the indication of the size of the search window increases an acquisition probability for said signal, however, one person of ordinary skill in the art would recognize that it would have been obvious that the determination of said window size increases the acquisition probability for detecting said signal coming from a network element, i.e., base station, because the mobile station sets the size of the search window according to information specific from at least one base station and the size is correspondent to detect a signal from a primary base station and at least two neighboring base stations, which only these signals the mobile station will acquire to calculate their signal delays (see col.7, lines 5-12, 39-44).

As well, Kuwahara doesn't expressly disclose wherein there is a separate search window for each of said network elements. Chen teaches a mobile station that receives pilot channel signal within search windows, and is expected to receive one pilot channel signal within each search window (abstract, lines 1-6; col.1, lines 41-52). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a separate window for each of the said network elements (e.g. pilot signals) as suggested by Chen, in order to conduct a more effective search.

Regarding claim 19, Kuwahara discloses apparatus comprising:

a receiver configured to receive signals from a plurality of network elements of a network for determining the location of said mobile station (col.6, lines 55 - col.7, lines 1-4; col.6, lines 26-33; signal receiver 20) and for receiving an indication of a size of a search window for each of said network elements (col.6, lines 55 – col.7, lines 1-12; window setter 22); and

a processor configured to determine a delay of received signals using a search window having said indicated size (col.6, lines 55 – col.7, lines 1-4; col.7, lines 13-16; delay profile calculator 21).

Kuwahara doesn't expressly disclose wherein the indication of the size of the search window increases an acquisition probability for said received signals, however, one person of ordinary skill in the art would recognize that it would have been obvious that the determination of said window size increases the acquisition probability for detecting said signal coming from a network element, i.e., base station, because the mobile station sets the size of the search window according to information specific from at least one base station and the size is correspondent to detect a signal from a primary base station and at least two neighboring base stations, which only these signals the mobile station will acquire to calculate their signal delays (see col.7, lines 5-12, 39-44).

As well, Kuwahara doesn't expressly disclose wherein there is a separate search window for each of said network elements. Chen teaches a mobile station that receives pilot channel signal within search windows, and is expected to receive one pilot channel signal within each search window (abstract, lines 1-6; col.1, lines 41-52). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to include a separate window for each of the said network elements (e.g. pilot signals) as suggested by Chen, in order to conduct a more effective search.

Allowable Subject Matter

10. Claims 5-6 are allowed.

11. Claims 18 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marisol Figueroa whose telephone number is (571) 272-7840. The examiner can normally be reached on Monday Thru Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marisol Figueroa

Marisol Figueroa
Art Unit 2617

LESTER G. KINCAID
SUPERVISORY PRIMARY EXAMINER